

WHAT IS CLAIMED IS:

1. A polarizing element comprising:
a layer including liquid crystal molecules; and
a polarizer having a transmission axis,
wherein, the liquid crystal molecules have a chiral smectic texture of a helical configuration, the axis of the molecular helix of the helical configuration is along a direction other than a direction normal to a surface of the layer, and a direction of an orthogonal projection of the axis onto the surface of the layer is substantially at 90° with respect to the transmission axis of the polarizer.
2. The polarizing element of claim 1, wherein the layer has a chiral smectic C texture.
3. The polarizing element of claim 1, wherein the chiral smectic texture is formed by liquid crystal molecules to be fixed one of physically and by a chemical reaction.
4. The polarizing element of claim 2, wherein the chiral smectic texture of the helical configuration is formed by liquid crystal molecules which are fixed one of physically and by a chemical reaction.
5. The polarizing element of claim 1, wherein the polarizer is one

of an iodine-type polarizing plate, a dye-type polarizing plate and a polyvinylene-type polarizing plate, and the polarizer has a degree of polarization of at least 98%.

6. The polarizing element of claim 1, wherein the layer is formed on a transparent substrate.

7. The polarizing element of claim 6, wherein the transparent substrate is formed by one of a cellulose-type resin, a norbornene-type resin and a polycarbonate-type resin.

8. The polarizing element of claim 6, wherein the transparent substrate also serves as a protective film for the polarizer.

9. The polarizing element of claim 1, wherein, of natural light that is incident from the direction normal to the surface of the layer, a linearly polarized light component whose vibration direction is substantially at 90° to the orthogonal projection is transmitted and a vibration direction of a linearly polarized light component whose vibration direction is substantially parallel to the orthogonal projection is substantially altered by 90° to be transmitted.

10. The polarizing element of claim 1, wherein the axis forms an oblique angle of from 5° to 90° with respect to the direction normal to the surface of the layer.

11. A polarizing element comprising:
a layer including liquid crystal molecules; and
a polarizer having a transmission axis,
wherein, the liquid crystal molecules have a chiral smectic C texture of a helical configuration, the axis of the molecular helix of the helical configuration is along a direction other than a direction normal to a surface of the layer, a direction of an orthogonal projection of the axis onto the surface of the layer is substantially at 90° with respect to the transmission axis of the polarizer, and, of natural light that is incident from the direction normal to the surface of the layer, a linearly polarized light component whose vibration direction is substantially at 90° to the orthogonal projection is transmitted and a vibration direction of a linearly polarized light component whose vibration direction is substantially parallel to the orthogonal projection is substantially altered by 90° to be transmitted.

12. The polarizing element of claim 11, wherein the chiral smectic C texture is formed by liquid crystal molecules to be fixed one of physically and by a chemical reaction.